

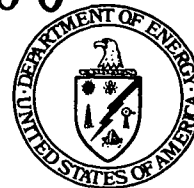


Department of Energy

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**JUL 16 1998
DOE-0983-98**

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Region V-SRF-5J
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Chicago, Illinois 60604-3590**

**Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911**

Dear Mr. Saric and Mr. Schneider:

**CONTRACT DE-AC24-92OR21972, LESSONS LEARNED FROM ON-SITE DISPOSAL
FACILITY PHASE I CONSTRUCTION**

Enclosed for your information is a lessons learned document associated with the On-Site Disposal Facility (OSDF) Phase I construction. The document was developed to document Cell 1 construction activities and to identify areas of improvement for future phases of OSDF construction.

The lessons learned document covers six significant areas. The areas include the following:

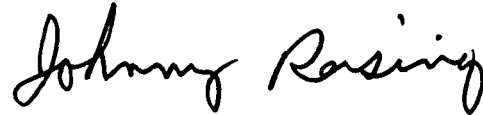
- Certification of OSDF Footprint
- Procurement of OSDF Contractors
- Mobilization Processes
- Construction Activities
- Revisions to Contract Documents
- Interfaces with Regulators/Stakeholders

These lessons learned have been incorporated into both the up front planning of OSDF activities as well as the construction/remediation activities planned for this construction season.

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If you have any questions, please contact Jay Jalovec at (513) 648-3122.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Jalovec

Enclosure: As Stated

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LESSONS LEARNED ASSOCIATED WITH PHASE I CONSTRUCTION OF CELL 1 AT THE ON-SITE DISPOSAL FACILITY

**Fernald Environmental Management Project
Fernald, Ohio**



June 1998

**U.S. Department of Energy
Fernald Area Office**

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ACRONYMS LIST

AIPI	Area I, Phase I
APZ	Acceptable Permeability Zone
ARARs	applicable or relevant and appropriate requirements
ATM	Authorization to Mobilize
CDL	Certification Design Letter
CONOPS	Conduct of Operations
CQC	construction quality control
CU	certification units
DCN	Design Change Notice
DCP	Design Criteria Package
DOE	U. S. Department of Energy
ECDC	Engineering Construction Document Control
EPA	U. S. Environmental Protection Agency
FDF	Fluor Daniel Fernald
FEMP	Fernald Environmental Management Project
GCL	geosynthetic clay liner
GML	geomembrane liner
HPDE	high-density polyethylene
ICAT	Integrated Construction Acceptance Testing
IRDP	Integrated Remedial Design Package
LCS	leachate collection system
LDS	leachate detection system
NTP	Notice to Proceed
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
oz/yd ²	ounce per square yard
PSPs	project-specific procedures
QAP	Quality Assurance Plan
QC/QA	Quality Control/Quality Assurance

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ACRONYMS LIST (Continued)

RFPs	Requests for Proposal
SCEP	Soil Characterization and Excavation Project
SSR	Standard Startup Review
SWP	Soil and Water Projects
TQM	Total Quality Management
VBS	Village Building Services, Inc.

1.0 INTRODUCTION

These lessons learned are associated with Phase I construction of Cell 1 at the On-Site Disposal Facility (OSDF) at the Fernald Environmental Management Project (FEMP). During Phase I, all associated remedial objectives and regulatory milestones were achieved in spite of delayed field mobilization. As with any project, however, there were opportunities for enhanced schedule and field performance. This assessment reviews a broad spectrum of lessons learned associated with OSDF Cell 1 construction, with a particular focus on schedule-related issues. The purpose of this lessons learned report is to document Phase I construction activities and to identify improvements that can be made in construction/remediation activities for future phases of OSDF construction.

2.0 CERTIFICATION OF OSDF FOOTPRINT

Ideally, OSDF cell construction activities would start in mid-April. This schedule start date allows maximum use of the field construction season; under normal conditions, an early Spring start should avoid sensitive liner construction activities during the onset of winter weather.

Cell 1, Phase I construction/remediation activities did not start until late June 1997 because the OSDF Footprint (Cell 1) had not been certified as required. A late Spring start date was the most influential factor leading to liner placement activities being performed later in the construction season than otherwise desirable.

Perhaps the most fundamental lesson learned related to this issue was that an adequate (i.e., approvable) Certification Sampling Work Plan must be developed according to a schedule that allows approval of a final Certification Report prior to cell construction field mobilization. Recent experience indicates that after remediation of the footprint area (or any other site area) is complete, a minimum of six months is needed for development of a Certification Design Letter (CDL) and field certification sampling with results incorporated into an approved final Certification Report. If significant remediation is required, a full field season for development and implementation of an Integrated Remedial Design Package (IRDP) in the footprint area is also required.

Beyond issues associated with the normally required time for development and implementation of certification activities, there were a number implementation-related lessons learned from Area 1, Phase I (A1PI). These lessons learned are the following:

- Sample locations in the certification units (CUs) should have been field verified before initiation of sampling; there were several CUs obstructed due to location in ponds, ditches, roadways, etc.
- Develop and use a controlled "master" map showing physical locations of samples and all structures located in field.
- Ensure consistent sample identification and nomenclature.
- Schedule field implementation prior to initiation of sampling work, and follow the schedule as written.
- Clarify CU designations during design of project rather than in the field at the time of sampling. Incorporate work around site features.
- Improve analytical coordination with the labs as they were not always notified about sampling status, resulting in delays in sample analysis turnaround.
- Ensure analytical methods are well defined and that the regulators agree with them beforehand.
- Integrate CU design with upcoming remediation scope of work. There should be one set of CUs for each contamination area. A1PI had three sets of CUs for a construction area resulting in confusion with sample results tracking.
- Establish an adequate data management process setup when field sampling is initiated. A1PI did not have such a process; consequently the project lacked information on sample numbers, status, how many samples taken, where in process they were, etc...
- Clearly identify in initial project-specific procedures (PSPs) the sampling requirements in one location, similar to a recently developed system that listed the number of samples required, sampling location, depths, etc. This information would have been useful to both reviewers and to field personnel completing the sampling.
- Use unique sample identifiers. They should be based on survey coordinates since sample data in the database will not align if sample coordinates (location) change for some reason.
- Follow the PSP as written. Personnel should take time to become familiar with PSP requirements. If a variance is needed, prior approval of the U. S. Department of Energy (DOE) and the U. S. Environmental Protection Agency (EPA) are required.

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- Obtain EPA concurrence (at least at the conceptual level) with the process to be used before initiating the process.
- Discontinue continuous reissuing of revisions to the PSP after a change is implemented. Rather, revise the original document through the variance process (i.e., maintain the integrity of the document throughout the process). Six versions of a PSP were too many.
- Analyze all 16 samples from a CU up-front rather than only the minimum of 12 samples when certification of a CU is time-critical.
- Improve alignment between where actual remediation is completed versus where remediation is reported. Specifically, there was an area not initially remediated due to access restrictions, but was reported in the certified area.

3.0 PROCUREMENT OF OSDF CONTRACTORS

Initiation of Cell 1, Phase I construction at the OSDF was not delayed by procurement of subcontractor services. It is, however, appropriate to review the time frames required to complete the procurement cycle. Use of the internet to issue Requests for Proposal (RFPs) has facilitated this schedule, but other significant schedule reductions are unlikely. If the desired construction/remediation schedule start date for OSDF construction contractors is mid-April of a given year, the following schedule for procurement should be observed:

Early October (previous year):	Issue Request for Proposal
Early December (previous year):	Proposals from Vendors Due
Early January:	Best and Final Offer Process Completed
Mid-January:	Consent Package to DOE
Mid-February:	Contract Award

Recent Fernald experience indicates that the submittal review and approval, after contract award, is time-critical to start the construction activities in mid-April.

Three contractors were obtained for completing Cell 1, Phase I construction work. Village Builders Services, Inc., (VBS) was procured under the Fluor Daniel Fernald (FDF) Mentor-Protégé Program to complete construction of the leachate collection system. Barrett Paving and Materials, Inc., (Barrett) was procured to build the Impacted Material Haul Road and relocate the North Entrance Road. Petro Environmental Technologies, Inc., (Petro) was procured for the remainder of Phase I construction. While issues did arise, Barrett and Petro proved to be aggressive, competent contractors indicating that the procurement selection criteria were valid.

The objective of the FDF Mentor-Protégé Program is to provide opportunities for small firms, by performing actual work, to expand their technical capabilities and become familiar with contracting in the DOE arena. This, in turn, allows these firms to credibly compete for future work at DOE (and other) sites without Mentor-type assistance. This program has been highly successful and viewed with in the context of the program's objective. VBS experience at Fernald was successful. A number of problems that directly and adversely impacted the project schedule were due to VBS's relative inexperience with the given scope of work and the Fernald work environment. Change orders caused VBS to lose focus of its primary goal which hindered its performance from the start. The principal lesson learned is that it is not always appropriate to select such high profile, schedule-driven projects to implement the Mentor-Protégé Program that has teaching as a major objective.

4.0 MOBILIZATION PROCESS

4.1 MOBILIZATION ACTIVITIES

The mobilization process, before the start of construction activities, is to ensure DOE and FDF that a contractor can meet contract obligations. This process involves five sequential steps: Notice of Award, Notice to Proceed (NTP), review and approval of submittals, Authorization to Mobilize (ATM), and receipt and inspection of equipment.

The first step is to provide the necessary financial instrument to protect the government and tax payers from default or serious injury. The contractor has ten days to submit a performance bond and the

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insurance certificates. The performance bond is the contractor's promise through a third party (bonding company) to work diligently to accomplish the scope of work in accordance with an established schedule. The FEMP generally requires insurance certificates for liability, automobile liability, and workers' compensation. These requirements provide FDF with a level of comfort that the contractor has the financial instruments in place to cover unforeseen occurrences during the construction.

After the contractor has submitted these documents, FDF must verify the validity of these documents. FDF must provide a NTP in a timely manner (normally within 30 days) or show cause for not giving the NTP. In the case of last year's contractor, Petro, the contract was awarded on April 1, 1997, and the NTP was April 10, 1997. This example illustrates a 30 day schedule savings. This schedule saving was accomplished by having a dedicated procurement team working closely with the contractor to approve these submittals.

The second step is to provide the required submittals to FDF to obtain a contractor concurrence that it shall perform in accordance with the contract requirements. The contractor transmits the submittals from the submittal register that were identified prior to the ATM. There is a hierarchical arrangement of submittals. These key submittals are requested first for review and approval by FDF (e.g., Safe Work Plan, Erosion and Sediment Control, Contractor's Pay Item Schedule, Contractor Construction Work Activities Schedule, Excavation Plans, Traffic Control Plans). ATM is given after key submittals are complete, and the contractor is allowed to start the physical work, after receipt and inspection of the equipment.

4.2 TQM ALIGNMENT MEETINGS

FDF typically conducts Total Quality Management (TQM) alignment meetings prior to initiation of work activities. These alignment meetings focused on key concept areas, including:

- Safety.
- Roles and responsibilities.
- Project mission and vision statements.

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- Total quality management plan, and
- Key result areas.

In addition to the key concept areas, these project-specific issues were discussed:

- Payment for work in process (Pay Item Schedule),
- Industrial Relations issues,
- Contractor training requirements,
- Contractor schedule,
- Utility service,
- Temporary facilities,
- Standard work week, and
- Hoisting and rigging.

The intent of reviewing the key concept areas was to get contractor concurrence with project goals. However, this portion of the alignment is very time-consuming, and to date, has not produced the desired results. As such, the OSDF/Soil Characterization and Excavation Project (SCEP) Team modified the alignment process for Phase II of the project. There was detailed planning to identify critical safety, construction, and quality control activities and materials.

5.0 CONSTRUCTION/REMEDATION ACTIVITIES

The OSDF Project had major construction activities across the entire FEMP site. These activities included constructing the Impacted Material Haul Road, installing over two miles of leachate piping, relocating approximately a mile of the North Entrance Road, installing erosion and sediment controls, and constructing Cell I for the OSDF. The following is an expanded description of these work activities.

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5.1 RESOURCES

The FEMP is currently transitioning from an operation facility to a remediation site. As such, the majority of the site workforce is still trained for production/maintenance activities. The transition from production to full scale remediation will occur over the next several years. During this transition, human resources will be retrained and reassigned. Last year, the FEMP instituted a project concept that placed management and assignment of human resources under the direction of each project manager. In most incidences, this process worked smoothly; however, there were shortages of some skills. Personnel with field construction/remediation skills were identified as needed. The Soil and Water Projects (SWP) Division Vice President appointed a project manager for Construction. This project manager has the dual responsibility of executing the field work and balancing the construction resources across the division.

5.2 CONSTRUCTION

Construction of the OSDF sediment basin and erosion and sediment controls began in mid-May 1997 and was completed in approximately six weeks. The clearing, grubbing, and striping work activity for the Cell 1 footprint began June 20, 1997, and proceeded concurrently with the sediment basin construction. The former North Entrance Road removal began July 1, 1997, and proceeded in a manner that would not impact the schedule of other critical activities. Cell 1 excavation began in early July after clearing and grubbing of the pine trees in the northwest corner of Cell 1. Material excavated from the clearing and grubbing areas deemed unsuitable for structural fill was stockpiled southeast of future Cell 3 to be used later as topsoil. Perimeter channel excavation began in mid-July. Material from channel excavation was used to construct the perimeter berms for Cell 1 and extended into Cell 2.

The excavated soil was visually inspected and segregated during Cell 1 excavation. Soil unsuitable for clay liner construction, namely gray fatty clays and sands, was stockpiled southeast of future Cell 3. The gray clays were suitable for perimeter berm construction. This material was then directly transported from the excavation to the areas of the berm undergoing construction. The brown clay material was stockpiled south of Cell 1. Samples were taken from each stockpile for testing of the physical properties of the soil prior to using the soil for Cell 1 clay liner construction. Excavation of

Cell 1 to subgrade was completed in early August 1997. The subgrade was proof rolled and visually inspected for rutting. Where rutting occurred, the subgrade was undercut and replaced with compacted clay fill material.

Construction of Cell 1 clay liner began in early August 1997. Cell 1 clay liner placement progressed from the northeast corner of the cell to the west, as subgrade preparation continued simultaneously on the southern portions of the cell. Initially, clay liner placement progressed at a slow pace due to the unexpected overabundance of rock (e.g., a changed field condition) in the clay liner soil material. The rocks were removed by hand picking and were transported to the southeast stockpile for unsuitable materials. As placement progressed, the construction quality control (CQC) consultant performed field testing of the clay liner material. The majority of the field tests failed to meet moisture content and compaction requirements needed to reach the Acceptable Permeability Zone (APZ), as determined from the Test Pad results.

As a result of the changed field condition, three screening plants, only two of which were used for Phase 1, were brought on site to aid in rock removal. The screening of the clay material not only helped the rock removal process, but also made the clay more workable during compaction. This was accomplished because the material was mixed, and rock particles and clods greater than two inches in diameter were removed. Also, the soil was wetted, at the end of screening, to bring the moisture content into the APZ range. Overall, the rock and moisture content issues delayed the completion of the clay liner construction by approximately three weeks.

Prior to clay liner completion, the horizontal well and leachate collection system (LCS) and leachate detection system (LDS) pipelines were excavated, installed, and backfilled. To install these lines, excavation proceeded through the west perimeter berm and haul road which were previously constructed. As a result, a section of the berm and road were reconstructed after the pipelines were installed. Reconstruction would not have been necessary if the horizontal well and leachate lines were installed prior to berm and haul road construction.

Construction of the gravity portion of the leachate conveyance system began in mid-August 1997. The leachate conveyance system was constructed on the west side of the disposal cells. This work included

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three sets of manholes comprised of leachate collection and leachate detection manholes and associated piping and appurtenances. There were two separate contractors performing work in the same area simultaneously (i.e., cell contractor and leachate contractor) with an interface of work at 30 feet outside each manhole. Future leachate manhole construction and associated piping should occur early in the cell construction to preclude impacts to construction of the cell haul road, services road, and stormwater inlet structures.

After completion of clay liner construction, installation of the secondary geosynthetic layers progressed from east to west across the cell from higher to lower elevation. This activity began in mid-October 1997, which was late in the construction season. The late start was due to a three week delay during clay liner construction and a three week delay in conformance testing of the geosynthetic clay liner (GCL). The secondary liner required extensive repair primarily due to fusion welding. The OSDF contractor elected to employ a second qualified liner installer to initially supplement the original liner installer. The second installer eventually took over the remaining liner installation work which resulted in a higher production rate and better quality fusion welds. Prior to primary liner completion, the LCS granular layer placement began on the west end as the liner was being installed on the east end of the cell. Although most of this work was simultaneous, there are three recommendations for future liner installation: 1) Start early in the season for geosynthetics installation and no later than late in September to early October; 2) Provide adequate manpower to install and repair the geomembrane concurrently; and 3) Schedule for geosynthetics deployment could have been improved by phasing the construction of the geosynthetics and clay liner from east to west.

Construction of the one foot protective cover began upon completion of the geosynthetic layers and leachate conveyance system construction. As per design, the one foot protective layer was installed prior to placing a two foot select impacted material layer. Since the protective layer was not completed until late December 1997, the two foot select layer was not be placed until Spring 1998.

5.3 GEOSYNTHETICS INSTALLATION

The Phase I OSDF contract required the procurement and installation of three geosynthetic materials. The materials are:

- GCL,
- Geomembrane Liner (GML), and
- Geotextiles.

The GML is an internally reinforced bentonite core with woven and non-woven geotextile backing. The GML is the 80-mil textured high-density polyethylene (HPDE) material. The textured material was specified to increase the interface shear strength between the GML and GCL. Three different weights of geotextiles were used in the construction of Cell 1. The 10 ounces per square yard (oz/yd²) and 16 oz/yd² weight fabric was used as a cushion layer in the LCS and LDS. The 7 oz/yd² geotextile was used as the geotextile filter between the LCS and first waste placed.

During the construction of Cell 1, these materials of construction were tracked for compliance with the specifications. FDF did a good job tracking the necessary approvals for both the GML and the geotextiles. However, the tracking of the GCL was lacking. The GCL is a long lead item due to the exacting testing requirements. The contractor had difficulty supplying GCL that met the shear strength specifications. As a result of this episode, FDF has procured these long lead items for the Phase II construction.

5.4 CONTRACTOR PROGRESS REPORTS

FDF conducts weekly contractor status meetings. These meetings are designed to discuss and verify contract progress during the past week. Also, the contractor presents its planned work activities for the next two week period. During this meeting, coordination issues are discussed and resolved. Once agreement is reached, the schedule is revised. Unfortunately, the contractor status meetings last year focused on contractor interferences rather than on contractor status. As a result, key schedule items were not monitored as closely as warranted. Experience has shown that monitoring key activities as

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well as total performance is key to the successful completion of the activity. While there was some large-scale project monitoring, there is room for improvement in the manner by which key activities are monitored. As such, the OSDF Project has developed key activity charts that will be updated weekly. This graphic representation will focus management and contractor attention on critical work activities.

Several construction and administrative issues arose throughout the construction of Cell 1 that delayed completion of the project in a timely manner. These lessons learned are as follows:

- The late June start of construction caused FDF to miss two months of construction weather.
- Since the Cell 1 subgrade excavation was deeper than other cells, more unsuitable (soft and wet) subgrade was encountered than expected.
- Deeper excavation in Cell 1 also caused excavation of more rock than was encountered in the test pad.
- Variation in the clay material impacted the APZ for clay liner and added three weeks.
- The leachate conveyance system contractor had more difficulties executing his contract than expected.
- The cell contractor experienced great difficulty with his first geosynthetic installer; therefore, a second installer was employed. In order to use a second installer, the cell contractor had to go through an approval process again.

6.0 REVISIONS TO CONTRACT DOCUMENTS

Design documents are an essential part of the remedial action process. Design documents typically take the form of technical specifications and construction drawings. These documents represent a controlled plan for executing the work. In the course of conducting an environmental remediation, certain other documents become necessary to adequately convey the extent of the remediation activities.

These planning documents may include:

- Construction Quality Assurance Plans.
- Surface Water and Erosion Control Plans.
- Operations and Maintenance Plans, and
- Post-Closure Plans.

As experience is gained during the remedial action, lessons learned should be incorporated into the appropriated design and contract documents.

There are two types of lessons learned for the OSDF Project. The first type are contractual lessons learned and the second type is process improvement. Due to the liabilities associated with the contractual items, a thorough discussion of the first type of lessons learned is not presented at this time. However, FDF invites the regulatory agencies [EPA and Ohio Environmental Protection Agency (OEPA)] to present their views on these issues to be discussed at a later time. This lessons learned summary addresses the process improvement issues.

Process improvements for an environmental remediation project typically require changing one or several design documents. These changes could be considered either major or routine. A major change is one in which DOE is requesting a change in design criteria, applicable or relevant and appropriate requirements (ARARs), or quality standard(s). Also, changes to reports that formed the basis of design could be interpreted as major in nature. An example of a major change is to change a design safety factor approved in the Design Criteria Package (DCP). Routine change is one in which none of the above documents are affected, but DOE identifies a change that will improve the work processes. An example of a routine change is to require the contractor to use mechanical screens to remove greater than two-inch rock.

A third and key component to the design documents is the quality control/quality assurance (QC/QA) activities performed. The QC activities are accomplished through inspections, tests, and observations necessary to control the quality of construction. The QA activities include verifications, audits, and evaluations of materials and workmanship necessary to determine if the facility is built in accordance

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with the design documents. These changes can be classified as either major or routine. A major change is to change to an ARARs-specific testing frequency or requirement. An example of a major change is the waiver DOE requested and received for the carbonate content in the leachate drainage material. A example of a routine change is one in which the testing was set at a higher than required frequency; and after reviewing the previous year's test data, a modified frequency was adopted.

Affected or involved design organizations must concur with any proposed changes. As such, it is difficult for DOE to predict when these changes would occur. For major changes, DOE recognizes the need for using the regulatory submittal process to gain acceptance prior to implementation in the field. Also, routine changes will be implemented as Design Change Notices (DCNs) to the affected documents. It is DOE's intention to continue to be available during the regularly scheduled Tuesday conference calls with the agencies to discuss the DCNs using a process started during the Phase I OSDF activities.

6.1. SPECIFIC ENGINEERING LESSONS LEARNED

There were two specific lessons learned during the OSDF Phase I activities. These are:

- Ensure inclusion of government -furnished materials and equipment and their respective specifications. Future OSDF construction should consider the advantages of FDF purchasing liner materials and other pertinent long lead items. This may improve schedule and reduce costs since contractor overhead is reduced and delivery can be expedited.
- Ensure specifications are clear and specific, but give latitude to adapt to field conditions while still conforming to intent of specifications. When reviewing or preparing specifications for subsequent OSDF Construction Bid Packages, FDF will incorporate the information and/or changes from the earlier construction DCNs. This is particularly important with compaction requirements for the liner system and pipe bedding and backfilling.

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6.2 DCNs AND SUBMITTALS

The DCNs and submittals lessons learned over the OSDF are:

- Ensure DCNs and submittals are timely, clear, and that we can maintain up-to-date copies in project files. Originals are filed with Engineering Construction Document Control (ECDC) and should be readily available to Engineering and Construction. Maintenance, monitoring, and tracking of submittals and DCNs requires a full-time person during construction.
- Recognize that many DCNs "trigger" a scope change and associated purchase requisition. Involve and/or inform Contracts and Acquisitions early to appraise of any funding considerations. Recognize that the DCN process(es), from its inception to actual completion including an impact assessment and approvals, can require considerable calendar time.

6.3 QA/QC PROCEDURES

The following are specific lessons learned in the QA/QC area during the OSDF Phase I activities.

They are:

- Recommend providing a "model" Quality Assurance Plan (QAP) for reference during the contractor bid period. A model QAP should give prospective contractors an indication of the contents expected and importance of a well done QAP, particularly since the plan is due within 15 calendar days from Notice to Proceed and work cannot begin prior to approval of the QAP.
- Ensure as-built (redline) information is provided within time frame identified (i.e., 20 days for Non-Soils projects and 24 hours for Soils projects). Identify and review FDF expectations with contractor(s). Track submittals of redlines to FEMP central site location(s) to ensure timely upgrade to Master Utility Grids. Suggest making this a weekly agenda item for each project.

6.4 MISCELLANEOUS

Two miscellaneous lessons were learned during the OSDF Phase I activities. They are:

- Emphasize advanced planning for Penetration Permit process to minimize time to obtain permits for excavation(s). Discussion on permit(s) needs should also be a weekly agenda item to ensure timely completion.

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- Emphasize importance of early scheduling of Integrated Construction Acceptance Testing (ICAT) and Standard Startup Review (SSR) (i.e., begin the process(es) early even though actual initiation is near the end of construction). Conduct of Operations (CONOPS) should be invited to the weekly project meetings early in construction to assist in the planning/scheduling effort.

7.0 INTERFACES WITH REGULATORS/STAKEHOLDERS

Two significant issues arose relative to regulator interface during Phase I construction: 1) providing the regulators with an updated project schedule that identifies all required project/construction activities with times required to implement the activities, and 2) defining the process for addressing Design Change Notices.

Proposed DCNs should be provided to the regulators as far in advance of implementation as possible. An FDF point-of-contact should be established who is responsible for ensuring that DCNs are forwarded to the regulators in a timely manner. Questions from the regulators should be answered in a timely manner.

Interaction with other stakeholders relative to OSDF construction seemed to go well. The key, as has been evidenced many times on other issues, is to keep stakeholders well informed of the status of project activities and aware of significant upcoming events. In particular, seeing "up close" key construction activities as they were occurring proved to be very valuable.